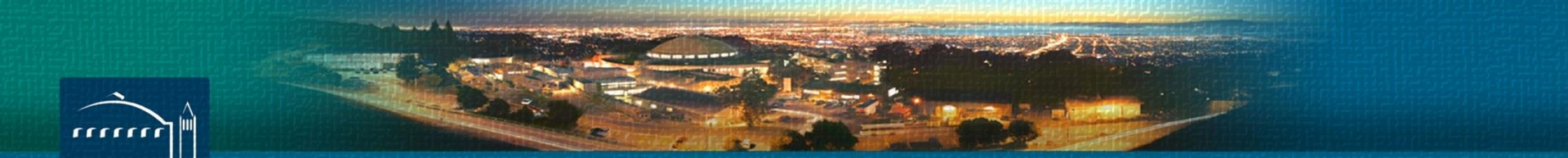


BEDES Strategic Working Group: Working Group Process

Dr. Jonathan Raab, Raab Associates, Ltd.

December 12, 2013

Washington, D.C.

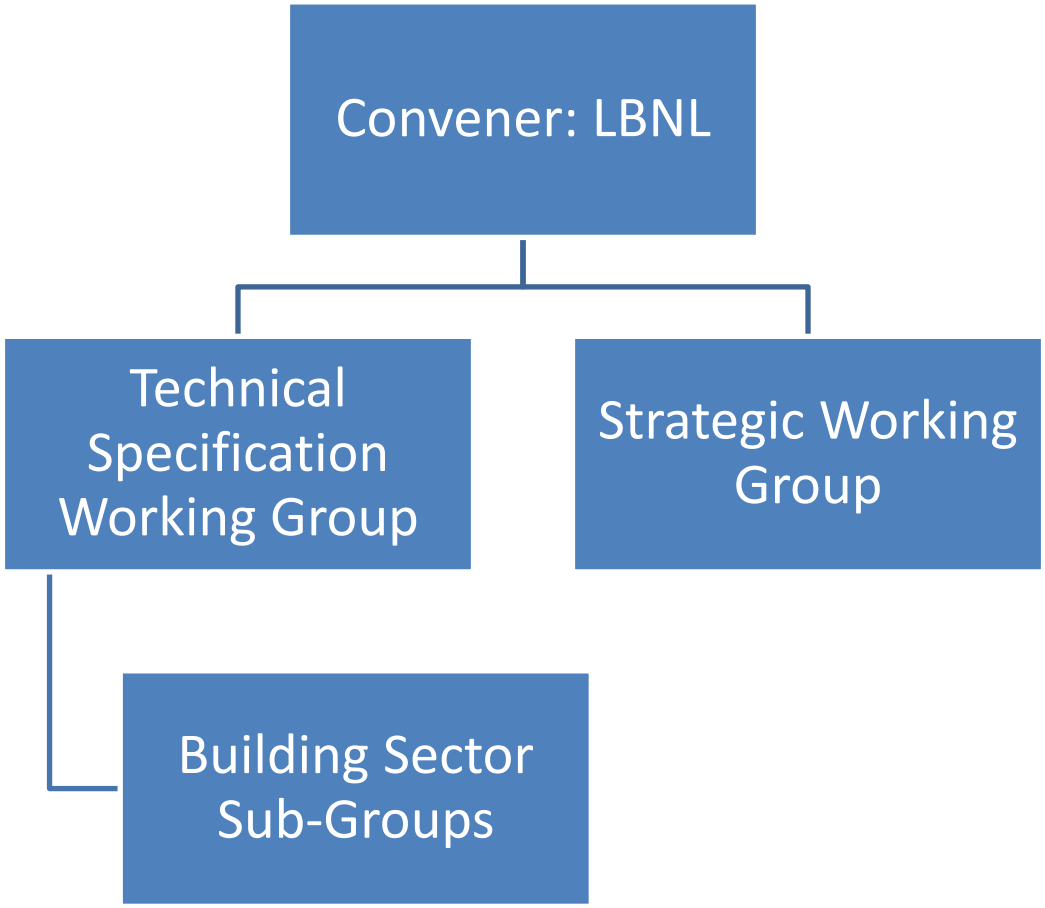
Purpose Of BEDES Working Group Process

- LBNL has been tasked by U.S. DOE to develop BEDES, and to consult with stakeholders along the way
- Purpose of the stakeholder process is to provide both strategic and technical advice to LBNL
- Stakeholder process serves in advisory, sounding board capacity to LBNL (seeking consensus or convergence among stakeholders as much as possible)
- LBNL is responsible for making final BEDES-related recommendations to DOE

BEDES Stakeholders

1. Owners	Building Owners & Managers
2. Implementers	Energy Auditors, A/E & Project Contractors
3. Administrators	Utility & State Efficiency Programs
4. Public Entities	Federal, State and Local Agencies
5. Financiers	Lenders & Investors
6. Researchers	Evaluators and Academics
7. Developers/Standardizers	Software Developers & Standards Entities

BEDES Working Group Structure



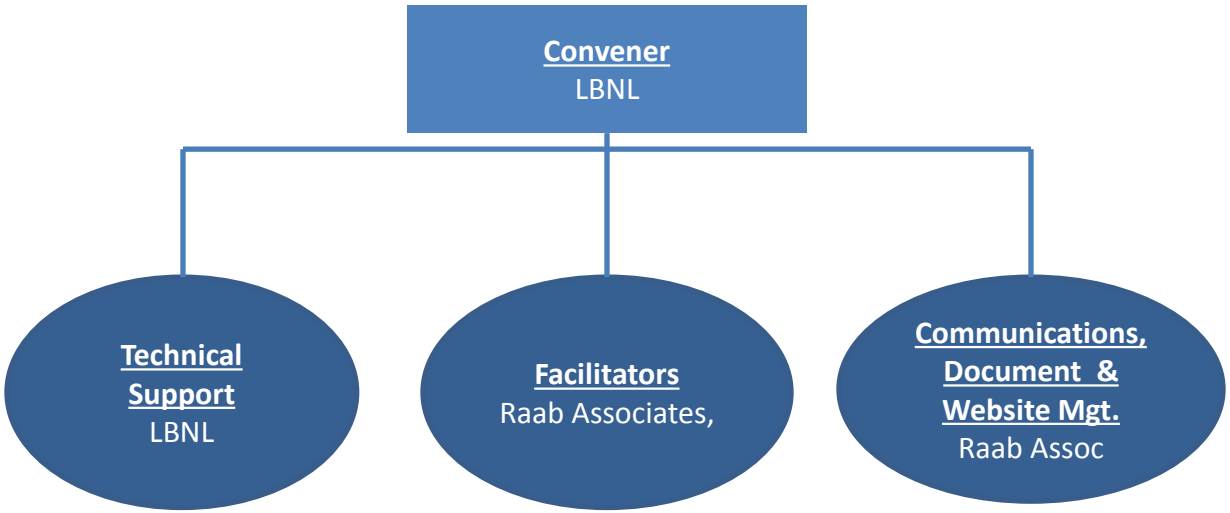
BEDES Team

LBNL

- Convener (organizer of the stakeholder process and responsible for the final report on BEDES)
- Technical Support

Raab Associates, Ltd.

- Facilitator for Strategic and Technical Working Groups, and Sector Sub-Groups
- Communications, website, and documents management



The Strategic Working Group (SWG)

- **Purpose**: Develop a strategy for widespread adoption and future management of BEDES, including:
- **Topics**:
  - How to leverage and harmonize existing specifications, including options for how other specifications can relate to BEDES,
  - Promotion of voluntary use in external tools, programs and guidelines,
  - Process and responsibilities for updating and maintaining BEDES over time
- **Meetings**: The SWG will meet 4 times in person during the nine-month work group process.

LBNL/BEDES Working Group Process Schedule

BERKELEY LAB

	Summer / Fall 2013	Dec	Jan 2014	Feb	Mar	Apr	May	June	Summer 2014
Finalize Stakeholder Design, Recruit Stakeholders									
Kick-Off Summit	→	●							
Strategic Working Group (SWG)		1		2		3		4	
Technical Working Group (TWG)		1	2	3	4	5	6	7	
Residential & Commercial Sector Sub-Groups (of the TWG)			Module I: Building-level data →		Module II: Equipment-level data →				
Final Summit (TBD)									

Detailed SWG Workplan--Dates

Meeting #	Date	Location	Time
1	December 12	Washington, D.C.	9:00—1:00
2	February 24	LBL, Berkeley, CA	9:00—4:00
3	April 22	Washington, D.C.	9:00—4:00
4	June 16	LBL, Berkeley, CA	9:00—4:00

Detailed SWG Workplan--Topics

- Identify and prioritize scope and use cases
- Determine relationship to key specs
- Resolve BEDES Facility Type Structure
- Develop management plan
  - hosting, operating and maintenance
  - process and responsibilities for updates
  - branding and adoption strategy
- Other (TBD)

- **SEE Handout for workplan**

Roles & Responsibilities: SWG

- Participants will make every attempt to attend all applicable meetings, to be on-time, and to review all documents disseminated prior to the meeting
- If a participant (or his\her alternate) cannot attend a meeting, they should let the Facilitator know prior to the meeting (by telephone or e-mail)
- Participants are charged with participating in a constructive forum where diverse points of view are voiced and examined in a professional and balanced way. Personal attacks are not permitted
- Participants agree to act in good faith in the discussions. 'Good faith' means that they will be forthright and communicative about the interests and preferences of their organization and will actively seek agreement wherever possible—endeavoring to offer alternatives if they can't support an option under discussion
- Let facilitator know if anything is not going well or can be improved (in confidence)

Ground Rules- Agreement Seeking

- Goal: Seek as much agreement as possible on both technical and strategic matters among participants
- Will strive for consensus where feasible within time constraints and given the range of opinion on a particular issue
- Consensus is defined as unanimity among participants at a given meeting (either in person or on the phone) whereby an option is considered acceptable (even if it may not be a participant's first choice)
- Where consensus is not reached, will note two or more options (in the meeting summary) and the level of support for each option
  - For those participating phone, will devise an efficient polling mechanism either in real-time thru Ready/Talk or other means, or post-meeting through survey monkey or other means

Ground Rules- Sub-Groups and TWG

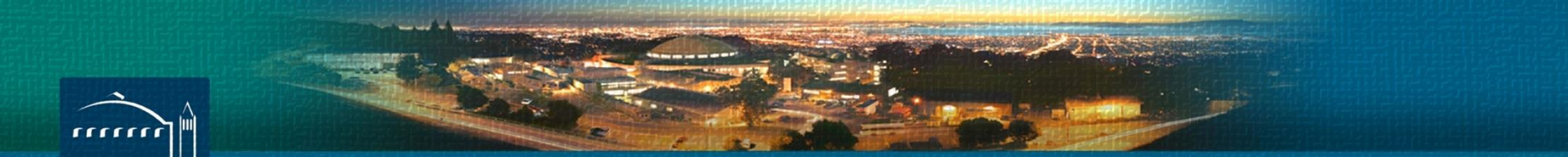
- The Commercial and Residential Sub-Groups for both Module 1 (Facility-Level Data) and Module 2 (Equipment-Level Data) will be providing feedback and recommendations through the TWG
- As such, any Sub-Group feedback and recommendations to LBNL will not be considered final until reviewed and supported by the TWG
- As a practical matter, TWG will likely simply support any consensus items from Sub-Groups and attempt to resolve any matters where Sub-Groups couldn't reach a consensus

Roles & Responsibilities: Facilitator & LBNL

- The Facilitator & LBNL Team will help design and manage productive and well-informed meetings. The Team will also be responsible for recording points of agreement and disagreement
- The Team will prepare draft agendas and meeting summaries in a timely fashion for distribution to the members
- The Facilitator will impartially, and in a non-partisan manner, (not favoring any participant over another), facilitate all meetings
- All documents will be posted on a web site maintained by the Facilitator for the duration of the process, and will provide email notice when new documents are posted on the website
- Facilitator will hold confidential conversations with working group members in confidence

Ground Rules- Phone Participation

- For face-to-face meetings, endeavor to participate in person (rather than on phone) if possible
- For phone/ReadyTalk (webinar) participation
  - Announce yourself during roll-call, and provide name when logging onto ReadyTalk (webinar)
  - Repeat your name before you speak each time
  - Be succinct in your comments
  - Mute your phone when not speaking
  - Participate in any preference polling in a timely manner
  - Encouraged to use Raise Hand or Chat for their questions or requests to speak



BEDES Use Cases

Strategic Working Group Meeting

December 12, 2013

What is a Use Case?

- In software and systems engineering, a use case is a list of steps, typically defining interactions between an actor and a system, to achieve a goal. (source: wikipedia)

- In the context of BEDES, each use case defines
  - Type of stakeholder(s) using BEDES
  - How BEDES is used for a specific business purpose

Why Define Use Cases?

- Identify what data fields are needed (or not)
  - e.g. Info needed for EE program evaluation, but not for benchmarking disclosure laws
- Determine how data fields should be defined
  - e.g. HVAC characteristics will need to be defined in more detail for simulation vs. empirical trend analysis
- Determine how data fields should be prioritized
  - e.g. Peak demand data not high priority for benchmarking disclosure laws

Use Cases Should Support Overall Goal of BEDES

The goal of BEDES is to facilitate the utilization and sharing of empirical building energy performance data among software tools and data collection and analysis activities, more easily and consistently and at lower cost

BEDES v1 Use Cases and Stakeholders

I. Energy Efficiency Investment Decision-making
   - by building owners/managers, financiers and implementers.

II. Building Performance Tracking
   - by public entities with disclosure polices.

III. Energy Efficiency Program Implementation and Evaluation
   - by utility and other EE programs

Primary Stakeholder Groups	
Owners	Building owners & managers, staff, tenants, asset managers, etc.
Implementers	Energy auditors, A/E, contractors, ESCOs, assessors, consultants
Administrators	Utilities, EE program administrators & contractors
Public Entities	Federal agencies, states and cities, regulators
Financiers	Lenders, insurers, appraisers, & investors
Researchers	Researchers, academics and advocates
Developers/ Standardizers	Standards entities, software developers

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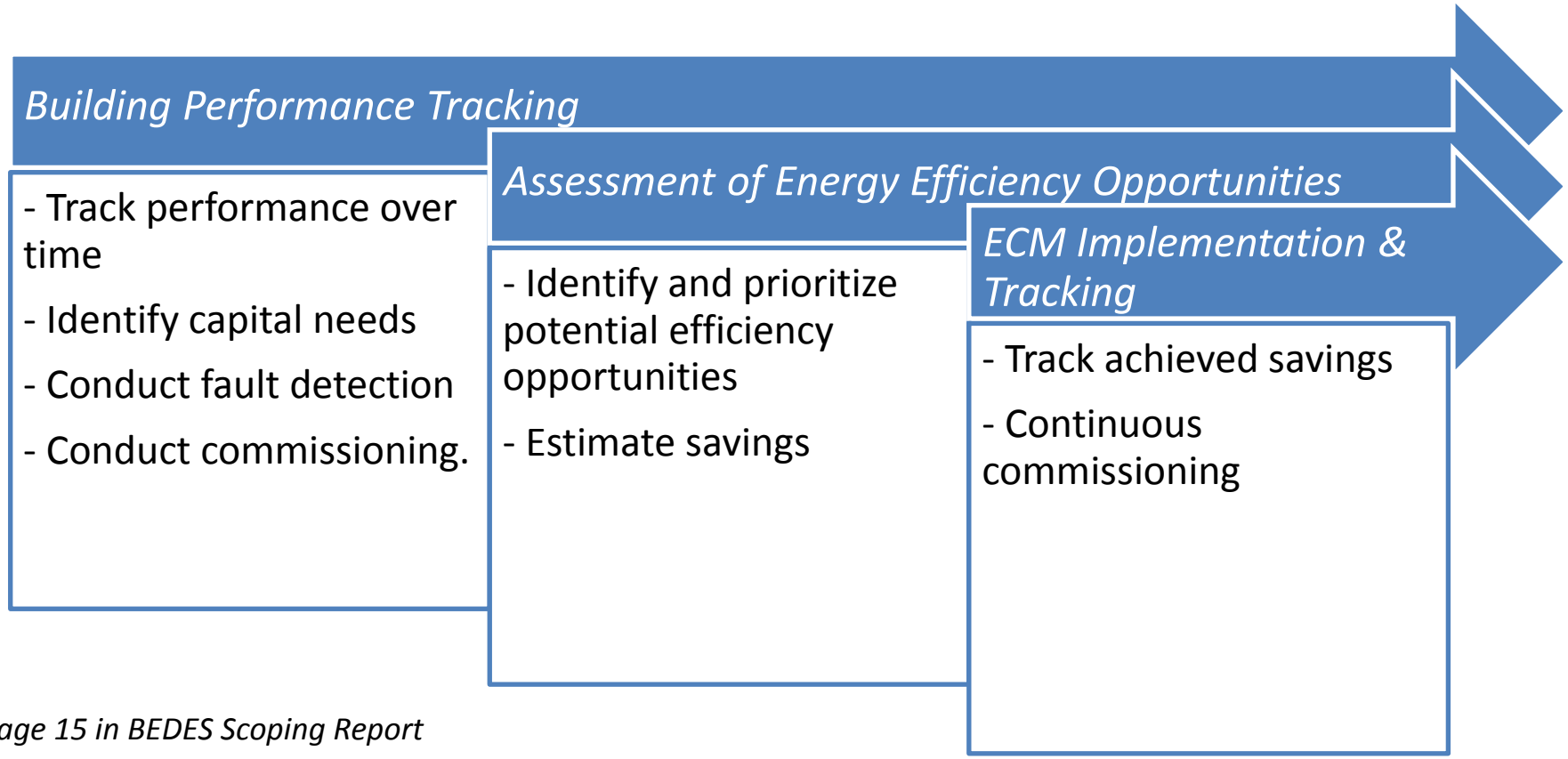
Use Case: Energy Efficiency Investment Decision-Making

Buildings owners and staff use building performance information to make decisions about capital investments or the operation of buildings, and track their impacts.



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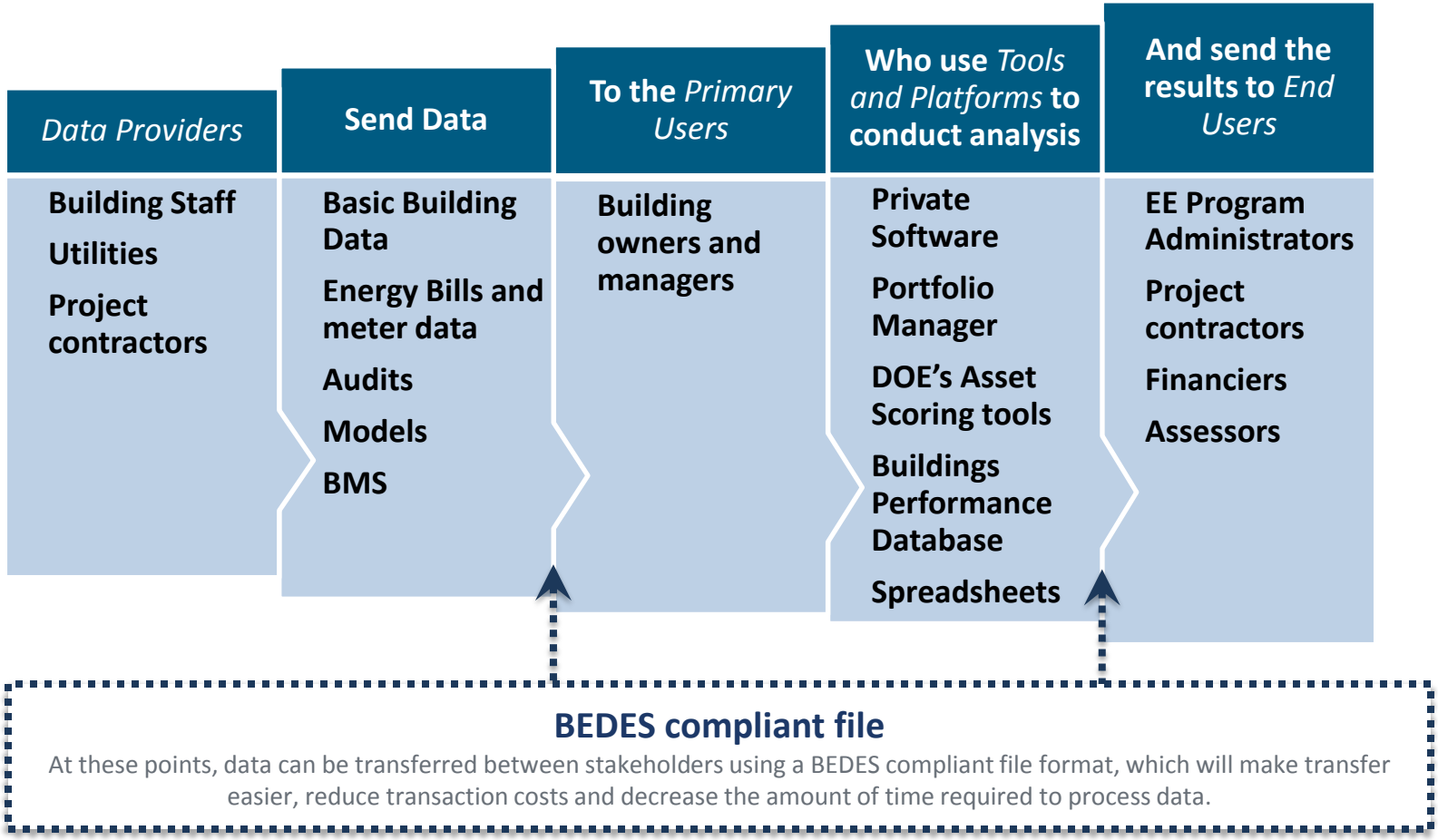
Energy Efficiency Investment Decision-making



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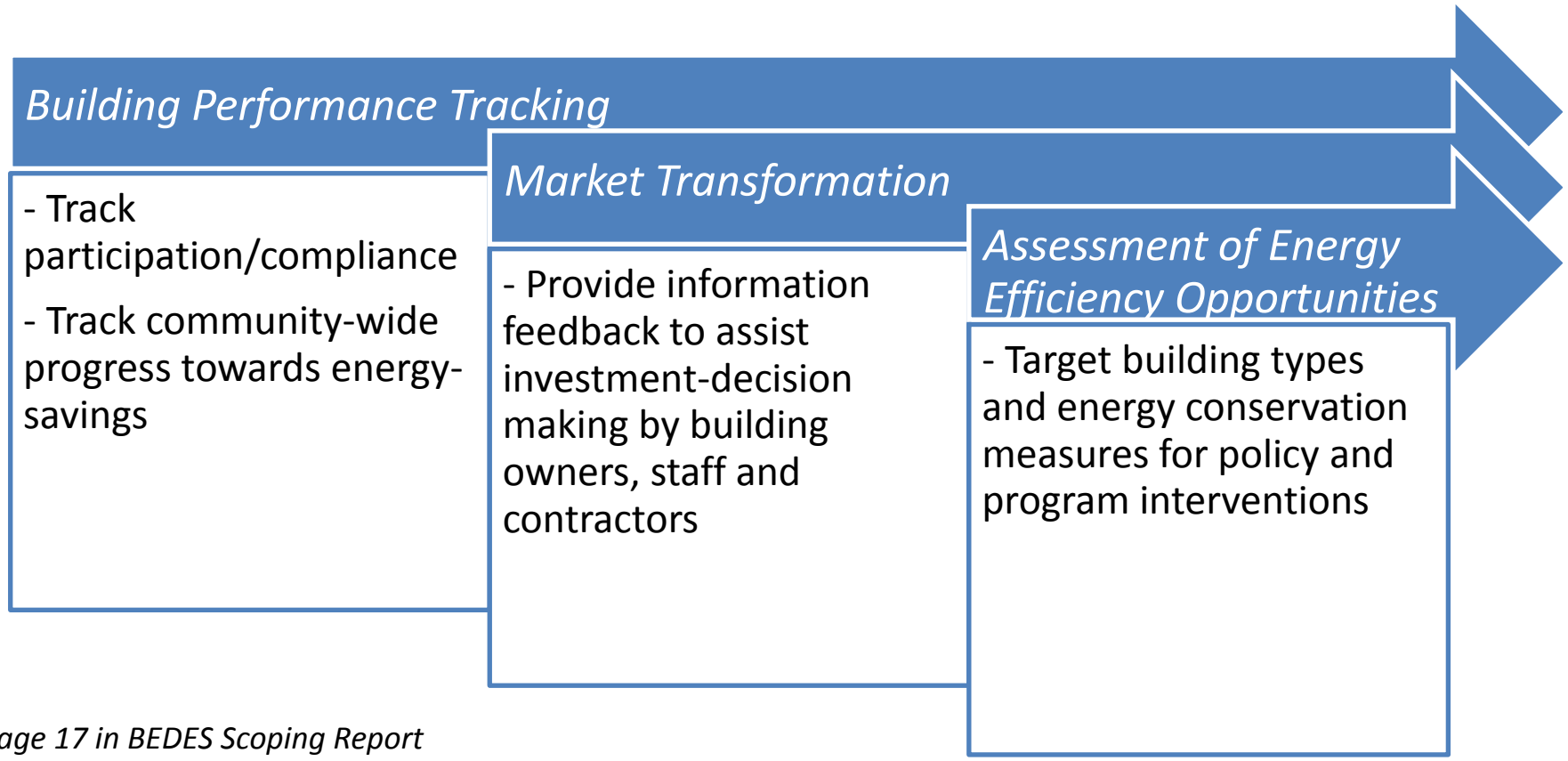
Use Case: Building Performance Tracking

Public entities that are implementing disclosure policies for public or private buildings collect, clean and analyze massive amounts of data, then make some of it publically available.



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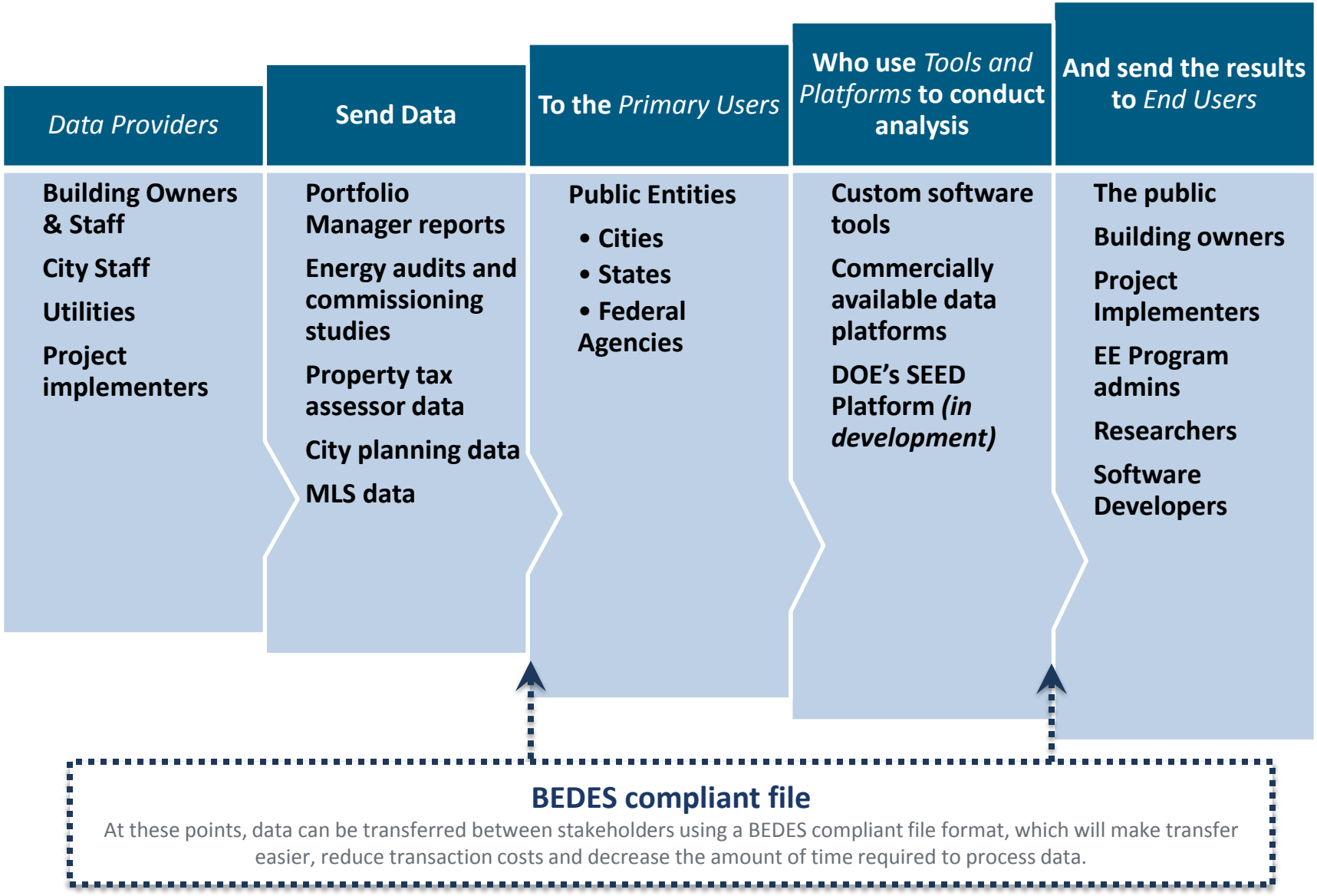
Building Performance Tracking



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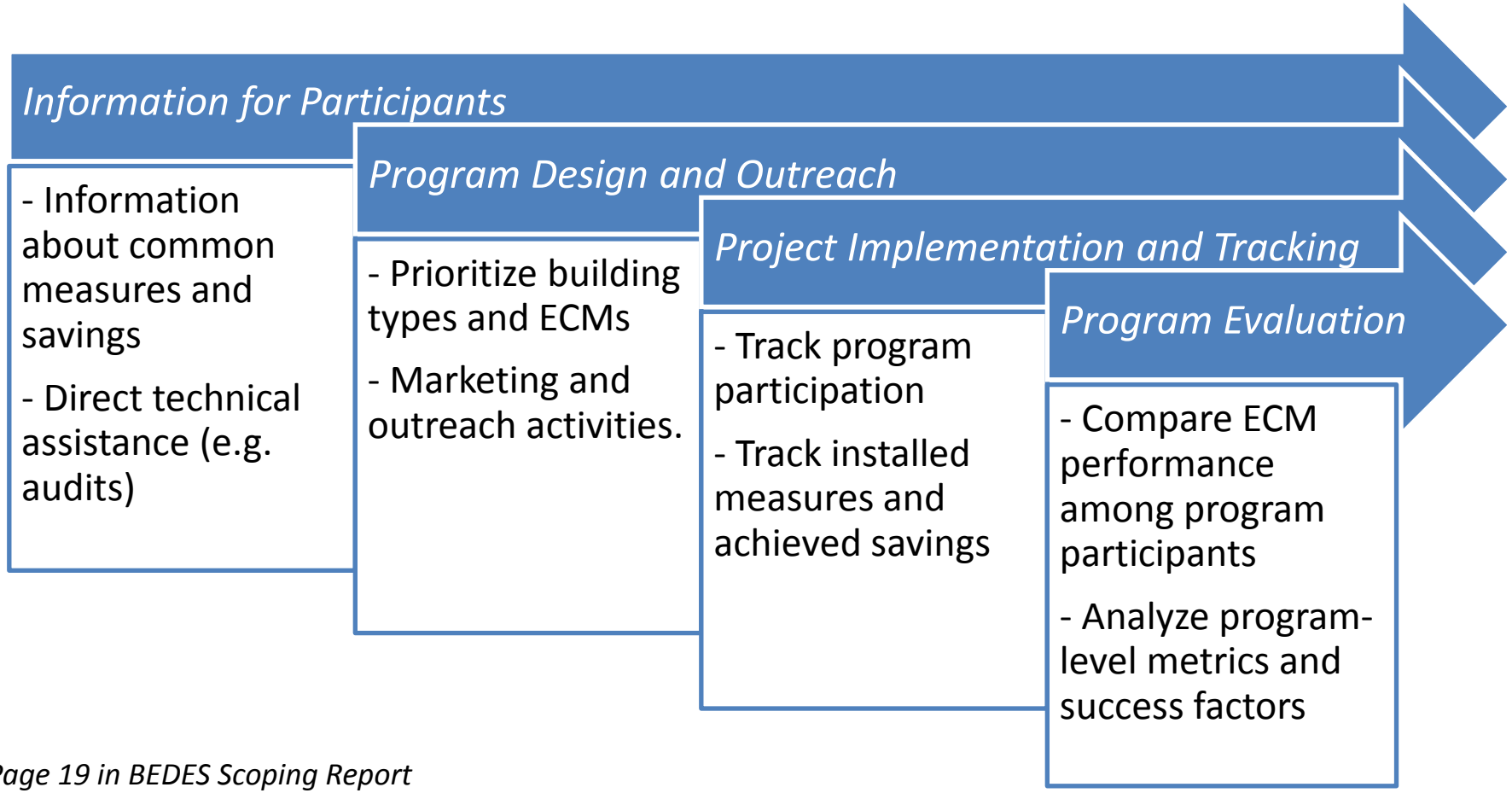
Use Case: Energy Efficiency Program Design and Evaluation

Efficiency Program Administrators utilize building performance data to target measures and program participants, provide information to participants, and assess program effectiveness.



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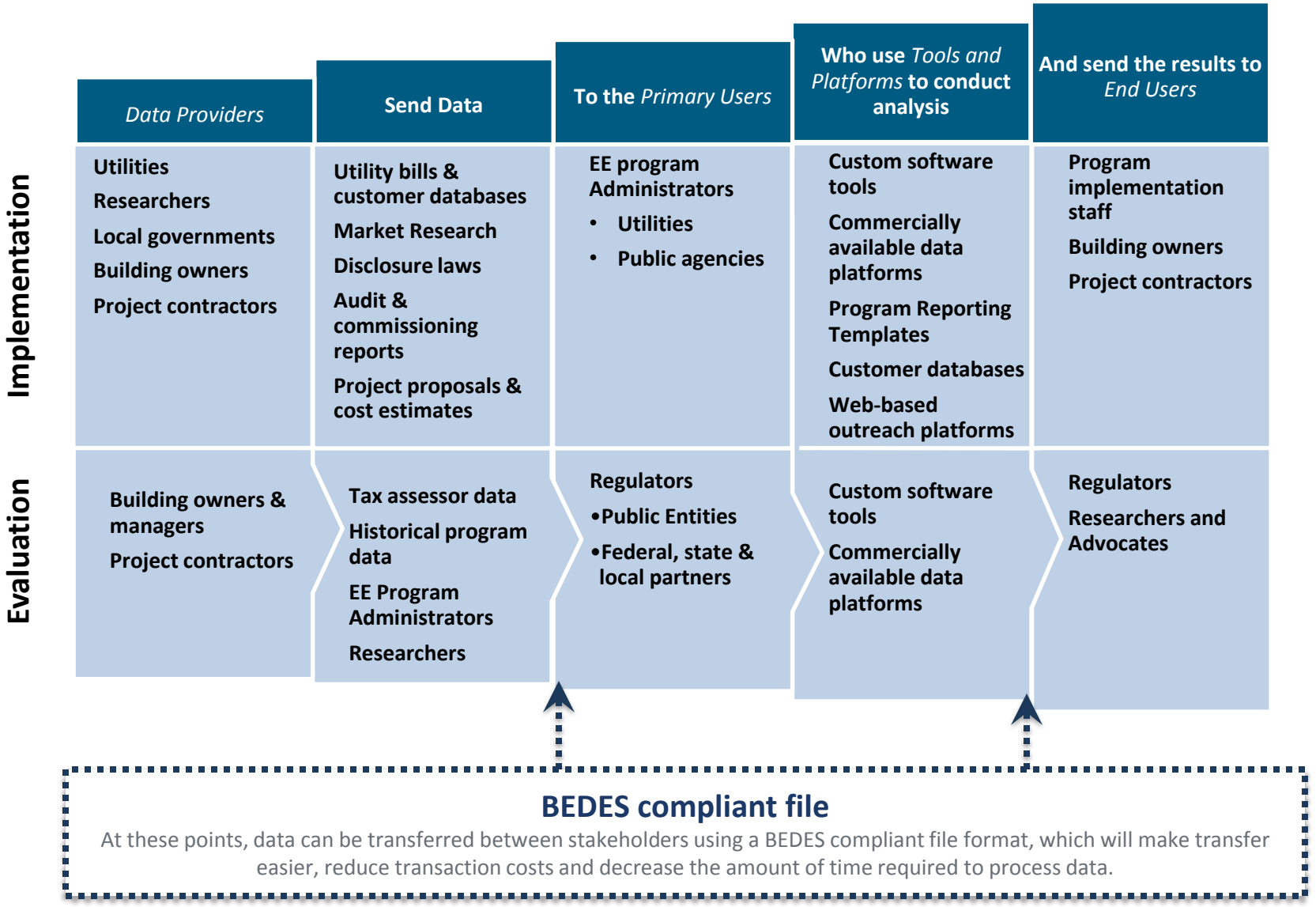
III. Energy Efficiency Program Design and Evaluation



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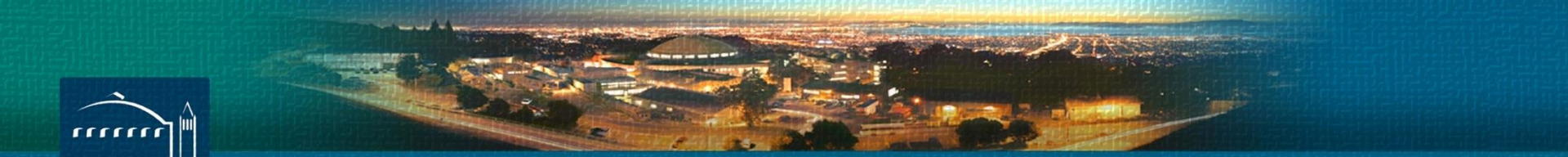
Discussion

- Are these the right three priority use cases for BEDES v1?
- Have we accurately described all of activities and data required to serve each of the use cases?
- Have we identified all of the most important actors (data providers, primary users, tool/platform users, and end users) for each of the use cases?
- Any additions, deletions, or modifications needed for each of these proposed use cases?



BEDES structure – How to address Multifamily?

Strategic Working Group Meeting

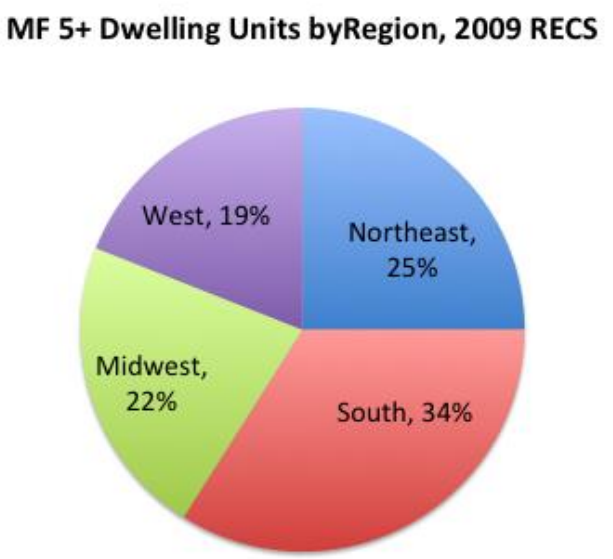
December 12, 2013

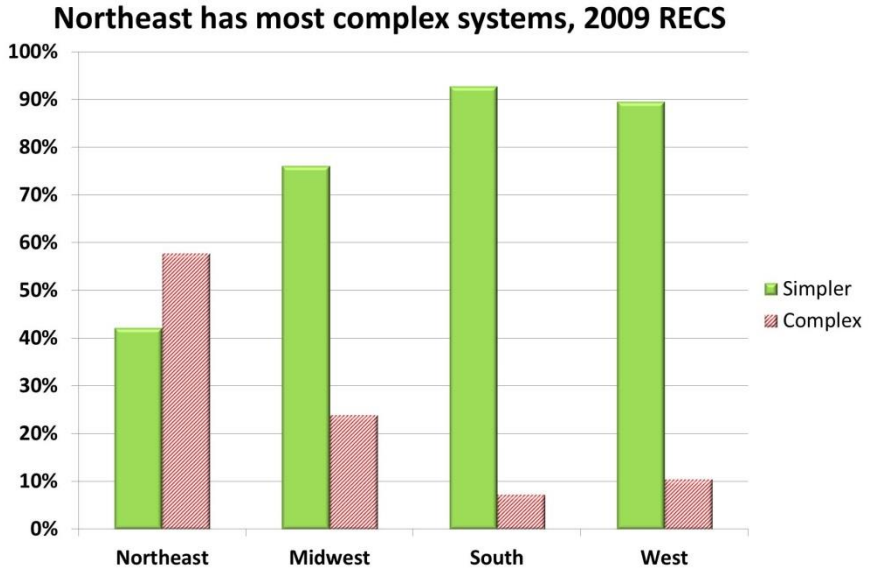
A Closer Look at BEDES

- What is BEDES?
  - Field names and definitions
  - Field types and units of measure
    (e.g. number, categorical list, percentage)
  - Relationship schema
    (hierarchies among fields of differing granularity)
  - File formats for data transfer (.xml and .csv)

- BEDES is not…
  - Data collection guidelines
  - A database or software schema (defining dependencies between fields)

What do we know about Multifamily Housing?





- RECS 2009, about 17 million households in multifamily buildings with 5 or more dwelling units (MF 5)
  - About 113 million total households (rental and owner occupied) in USA.
- 84-87% of all MF 5+ dwellings are in low-rise buildings (up to 4 floors) in 3 regions, only 47% in NE
- Significant regional variance in MF 5+ buildings between simple dwelling unit based systems versus complex central plant based systems
  - Complex systems being most common in the Northeast

In what ways is Multifamily Housing like Res and Com?

	Low-rise Multifamily	High-rise Multifamily
HVAC, controls and Ops	Dwelling units: Res Common areas: Either	Commercial
Domestic Hot Water	Either	Commercial
Lighting	Dwelling units: Res Common areas: Com	Dwelling units: Res Common areas: Com
Envelope	Residential	Commercial
Loads: Common areas and mixed use spaces	Commercial	Commercial
Loads: Dwelling Units (Plugs & Appliances)	Residential	Residential
Energy Generation, Storage & Other	Commercial	Commercial

Aspects of MF assigned to each Sub-Work Group (proposed)

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Residential

- Dwelling units
  - HVAC, controls and ops
  - Lighting
  - Loads (plugs and appliances)
- Envelope (low-rise)

Commercial

- Common areas and mixed-use spaces
  - HVAC, controls and ops
  - Lighting
  - Internal Loads
- Envelope (high-rise)
- Energy Generation, storage and other

Sub-Group Module 2 Meetings Equipment Level Data

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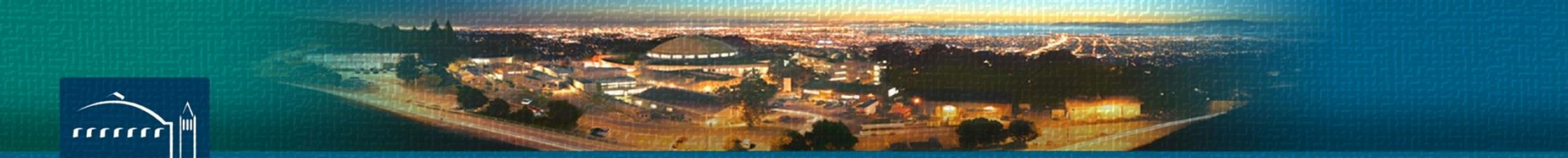
Topic--Draft	Commercial Sub-Group	Residential Sub-Group
HVAC, Controls, Ops	March 11	March 13
Lighting & Envelope	April 7	April 9
Internal & Process Loads	May 6	
Plugs, DHW, & Appliance Loads		May 8
Energy Generation, Storage & Other	June 3	June 5
Note: All meetings via phone and topics subject to being changed	*1:00-3:30 EDT*	

Discussion

- Process: Can the commercial and residential working groups incorporate and address different aspects of MF buildings, based on the previous slide(s)?

- Product: Does the final BEDES spec need to have a separate Facility Type for MF buildings?



BEDES Relationship to Key Specs

Strategic Working Group Meeting

December 12, 2013

Premise

- BEDES Scoping report identified several related efforts that should be harmonized with BEDES
  - The key efforts were selected because they have closely aligned use cases, market traction, and organizational heft.
  - Additional key efforts TBD via working group

- We need to identify options for how these efforts can/should relate to BEDES v1.
  - Assuming these efforts will continue, and BEDES should not subsume/replace them

Context

- Many existing efforts have technical relevance and market traction.
  - We need to harmonize these efforts with BEDES without compromising their momentum.
- Each effort has its own revision process and schedule.
  - Cycles typically annual/semi-annual, not months.
  - Typically volunteer-driven, which sometimes affects pace of progress

Key Related Efforts - Introductions

Federal Tools

For Public Use

- Portfolio Manager
- Commercial Asset Score
- Home Energy Score
- Buildings Performance Database (BPD)
- SEED Platform
- MulTEA

For Internal Data Management

- Compliance Tracking System (CTS)
- ESCO Project Analysis and Reporting System (eProjectBuilder)

Data Collection and Analysis Projects

- DOE Uniform Methods Project (UMP)
- Fannie Mae MF Green Initiative
- ASHRAE Energy Audit Guidelines
- USGBC LEED Reporting Requirements
- Investor Confidence Project (ICP)
- IMT/NRDC City Energy Project

Building Energy Data Specifications

- Green button
- HPXML (Home Performance XML)
- Integrated Energy Project (IEP)
- Real Estate Transaction Standard (RETS)

Key Spec mapping Summary

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	CTS	ESPM	CAST	HEScore	HES-SF	HES-MF	ePB	HPXML	Green Button
Site		✔		✔	✔	✔	✔	✔	
Res Facilities		✔		✔	✔	✔		✔	
Com Facilities	✔	✔	✔	✔		✔	✔		
Activity Areas	✔	✔				✔			
Systems		✔	✔		✔	✔		✔	
Measures	✔				✔	✔	✔	✔	
Energy Use	✔	✔			✔	✔	✔	✔	✔
Time Series		✔						✔	✔

Other Key Efforts?

Additional data specifications and formats reviewed

- ASHRAE PMP Best Practice
- ASTM Building Energy Performance Assessment
- CEC HVAC Data Model
- CEUS database
- EDDP
- EPA BASE Study
- Fannie Mae Multifamily Market Research
- GRI Reporting Protocols
- IAI Industry Foundation Classes
- ISO Standard 12655
- MISMO
- NAESB PAP 10
- OmniClass
- OpenADE
- Project Haystack

Which of these, or others, have aligned use cases and should be short term priorities? Which of these, or others, have less aligned use cases (such as design, construction and code compliance) and should be longer tern priorities?

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Three "Views" in a Continuum of Harmonization

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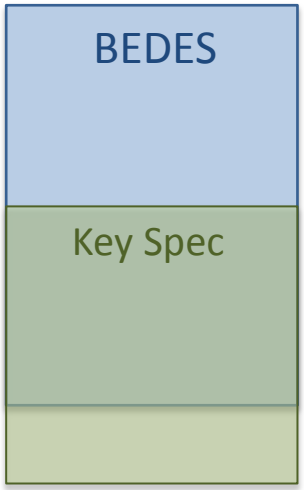
#1: Full harmonization: "Unified Spec"

All data fields & types in Key Spec are identical to BEDES

Key Spec may be a subset of BEDES

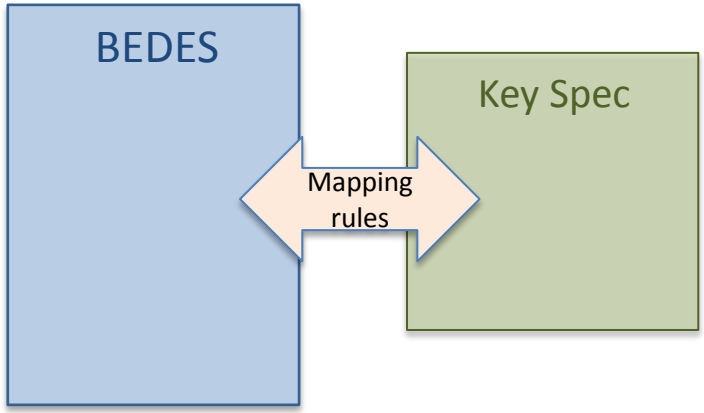
#2: Partial harmonization "Federated spec"



All *in-scope* data fields & types in Key Spec are identical to BEDES

Key Spec may contain *additional* data fields outside BEDES scope (domain or level of detail)

#3: Translation "Mapped spec"



All(?) *in-scope* data fields & types in Key Spec can be mapped to BEDES. Key spec includes mapping rules.

Key Spec may contain *additional* data fields outside BEDES scope(domain or level of detail)

Considerations

	Unified spec	Federated Spec	Mapped spec
Level of Effort and Organizational commitment	High	High	Low
Scope	Expansive – must include all key spec requirements	Can be limited and phased in modules	Can be limited and phased in modules
Revision process	Requires full approval of key spec orgs	Requires full approval of key spec orgs	Requires input from key spec orgs
Branding	Single joint product OR separate products with BEDES co-brand	Separate products indicating appropriate BEDES branding	Separate products indicating appropriate BEDES branding

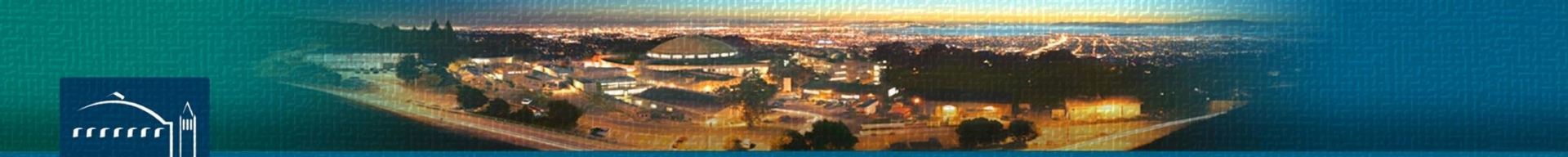
Questions

1. Are there other major options for harmonizing BEDES with other specifications, including hybrid options, and what would you call those options?
2. Should the SWG set a harmonization strategy preference or target up front?
   A. Would such a target help set expectations externally and for work groups?
   B. What should be the strategy for achieving this target overtime, and would interim options be needed?

Contact

Please send all BEDES related communications to: **BEDES@RaabAssociates.org** and it will be routed to the appropriate party

If you are participating in a Working Group, please sign-up online so that we might send relevant notices: RaabAssociates.org/WebComponents/Forms/Form_BEDES.asp



BEDES Strategic Working Group: Next Steps

Detailed SWG Workplan--Dates

Meeting #	Date	Location	Time
1	December 12	Washington, D.C.	9:00—1:00
2	February 24	LBL, Berkeley, CA	9:00—4:00
3	April 22	Washington, D.C.	9:00—4:00
4	June 16	LBL, Berkeley, CA	9:00—4:00

Workplan SWG Meeting 2: February 24

Task	January Meeting Activity
Identify and prioritize scope and use cases	Finalize use case selection
Determine relationship to key specs	Finalize relationships and harmonization method
Define branding	Brainstorm Branding options, with pros and cons.
Develop plan for hosting, operating and maintenance	Develop options for administration and support of BEDES, with pro and con exploration
Develop revision process and schedule	Develop options for an optimal BEDES revision cycle
Develop adoption strateg	Brainstorm adoption strategies

Identify and prioritize scope and use cases

- Key Questions to think about before next meeting
  - Are these still the right three priority use cases and so can be finalized?
  - If not, what needs to be changed?
- Preparation
  - LBNL: Will provide any revised (if applicable) use case descriptions to SWG Members ahead of Meeting 2 (1/24/14)
  - SWG Members: Will review material and come prepared to discuss in Meeting 2

Determine relationship to key specs

- Key Questions to think about before next meeting
  - Are we finished identifying harmonizing options for BEDES?
- Preparation
  - LBNL: Will provide any revised (if applicable) harmonization options to SWG Members ahead of Meeting 2 (1/24/14)
  - SWG Members: Will review material and come prepared to discuss in Meeting 2

Define Branding

- Key Questions to think about before next meeting
  - What does BEDES branding mean? Is it needed?
  - How important is it to brand BEDES in the market place?
  - Will branding significantly affect adoption?
- Preparation
  - LBNL: Will provide preliminary branding ideas to SWG Members ahead of Meeting 2 (1/24/14)
  - SWG Members: Will review material and come prepared to discuss in Meeting 2

Develop management plan

- Key Questions to think about before next meeting
  - What type of organization is best positioned to host, operate and maintain BEDES v1?
  - What types of revision cycles are available and realistic for a completed BEDES v1?
  - What type of market adoption plan is needed?
- Preparation
  - LBNL: Will provide a listing of the administrative task for managing a completed BEDES to SWG Members ahead of Meeting 2 (1/24/14)
  - SWG Members: Will review material and come prepared to discuss in Meeting 2

Contact

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If you are participating in a Working Group, please sign-up online so that we might send relevant notices: RaabAssociates.org/WebComponents/Forms/Form_BEDES.asp